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Effects of Priming and Impression Strategy on Memory for Person Information

by

(C) Julie A. Grenier

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Dedication

For my mother who made it possible, for Tamara who got me interested, and for Leonard who saw me through.

Abstract

The purpose was to examine how a primed identification schema and a strategy would interact, and to investigate the effects of varying the strength of a prime. Previous research on priming has suggested that priming a schema leads to a bias for schema consistent information. The schema chosen to be primed was peoples' impressions of a violently aggressive man. Zajonc's (1960) cognitive tuning sets (reception and transmission) were chosen as the two strategies to be manipulated. Previous research had indicated people normally use a reception strategy when forming an impression about a person, and that people who used transmission strategies when forming an impression constructed a very narrow, detail oriented impression. It was anticipated that priming and set would interact on recall and recognition and that priming, set, and consistency would interact on recognition.

There was support for the hypothesis that priming was not an all or none phenomena. Evidence suggests that how one primes a complex concept can affect the extent of the facilitation or inhibition effected by the prime. It was suggested that priming interferes with the default allocation of resources usually determined by the encoding strategy and that priming an identification schema would

have different results depending upon the type of encoding strategy being affected. For example, reception subjects developed a stronger response bias for consistent information as prime strength increased, while transmission subjects became less suseptible to the response bias.

There was weak support for a response bias for general levels of descriptiveness exhibited by both transmitters and receivers. Rather than only reception subjects having a response bias for general information (a level compatible bias) it appears that this bias exists for both receivers and transmitters. There was no evidence suggesting that transmitters were biased toward specific information.

The last hypothesis was that contrary to the assertions of researchers, people do have as accurate memory for consistent information as they do for inconsistent information. Accurate recognition memory for consistent information was expected to be displayed when people were tested with a forced choice test. People were able to exhibit high levels of recognition accuracy for consistent information when they were tested on a forced choice recognition test. Unexpectedly, their accuracy on consistent information was significantly better than on inconsistent information. This coupled with the finding that inconsistent information was remembered better than consistent when all items were false, lead to the conclusion

that people were making their decisions using a response bias for consistent information.

It was found that subjects were able to recall some items that they were unable to recognize. This led to the conclusion that subjects used different memory structures to acccomplish recall and recognition tasks.

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Introduction

Traditionally researchers in social psychology have been interested in factors affecting social interactions. In the past theorists have focused on the processes affecting impression formation and causal attribution (Heider, 1958; Kelley, 1972; Jones & Davis, 1965). More recently, researchers have examined the information processing aspects of social interaction by studying the effects of schemas on impression and memory (Cantor & Mischel, 1977; Hastie and Kumar, 1979; Gurwitz and Dodge, 1979; Nisbett and Ross, 1981; Cohen, 1981, etc.). In this paper "schema" is used in the sense of a procedural schema (Hastie, 1980): schemas are dynamic organizations of experience and inference which guide information reception and are capable of self-modification. Schemas have been discussed in a number of ways and have been categorized using various criteria. Nisbett & Ross (1980) used a type-of-content criterion to categorize schemas as event-schemas (scripts) and person-schemas (personae). Taylor & Winkler (1980) distinguish schemas on the basis of developmental status, and Hastie (1980) differentiates them based upon their processing power (e.g., prototypes, templates, & procedural). We distinguish between schemas that are noun-like and serve to identify entities (cf Taylor &

Crocker, 1981; Bruner, 1957), and verb-like strategies or sets of procedures (Becker, 1980; Higgins & King, 1981). This thesis focuses on how identification schemas and strategies interact to produce different impressions of a stimulus. The major indicator of the different impressions will be memory for the stimulus.

Before a schema can be affected by a strategy or vice versa, schemas and strategies must be selected. Control of selection can be accomplished through instructions and through priming. There are at least two ways to prime a schema. First, by manipulating recency of use of the schema and second by manipulating task (Higgins & King, 1981; Wyer & Srull, 1980; Zajonc, 1960). Priming increases schema accessibility (Higgins, Rholes & Jones, 1977; Higgins & King, 1981; see also Wyer & Srull, 1980), which increases its probability of being used to process information. Priming an identification schema (i.e., trait schemas, category schemas, etc.) provides a structure for organizing expected or compatible incoming information; whereas, strategies (i.e., recall, role, impression formation, etc.) seem to govern relationships among schemas. Thus, which stimulus information is consistent and/or central, etc. is determined by the identification schema (Hamilton, 1981; Wyer, 1980), whereas how the different categories of information are inter-related is determined by the encoding

strategy. For example, if we want to remember a number of items we can organize the information as a list, an impression or in some other convenient way (Hoffman, Mischel, & Mazze, 1980; Zajonc, 1960). Each item on the list, or component in the impression, is identified by its schema and integrated into a meaningful gestalt by the strategy. In the past social psychologists have examined the effects of strategies and stimulus identification schemas on memory separately. The proposed study is novel because it will examine the interaction of priming identification schemas and the operation of strategies.

Priming an Identification Schema

In the social psychological literature priming is normally treated as if it has only two states, presence or absence (Higgins, Rholes & Jones, 1977; Higgins and King, 1980; Cohen, 1980). Researchers have not tried to manipulate the degree to which a schema is primed, even though there is no reason to believe that priming has an all or none effect on the amount of available schema information. Priming may affect the extent to which schema information becomes influential in processing: i.e., the extent to which processing is theory driven. Theory driven processing assumes that schemas operate like theories guiding our attention at encoding and our memory search at retrieval. Taylor & Crocker (1980) discuss partial

accessing of schemas, and point out, for example, that one need not know the colour of a cowboy's hat when imagining a cowboy, although the information is there if needed. Further, the cowboy imagined by someone who has just seen a western (a strong prime) is more vibrant and detailed than one imagined by someone sitting at her desk writing an essay on clowns (no prime).

Rather than manipulating the extent of the effect of the prime, researchers typically manipulate which schema is selected. For example, Higgins, Rholes and Jones (1977) primed identification schemas that guided encoding of target information. They unobtrusively primed subjects with positive and negative trait categories - some of which reasonably could, and others could not, describe an ambiguous target person. Subsequently, subjects were asked to characterize the target and then to answer an impression formation questionnaire. None of the subjects used any of the primed but non-applicable traits to characterize the target. [1] Only pertinent identification schemas were used to encode target information. Only those primed traits that could be inferred from, or were compatible with, observed behaviours were used to characterize the target. Further, priming affected which type of information (either positive

---

[1]The target was characterized as adventurous & reckless (applicable positive and negative respectively) but not obedient or disrespectful (nonapplicable positive and negative respectively).

or negative) was used to characterize the target and which over time, resulted in polarization of target characterizations to make them more compatible with the valence of the primed schema (i.e., positive or negative). Unfortunately, since there was not a 'no prime' control group we do not know the extent to which the prime altered subjects' characterizations from what they would otherwise have been. It is possible that priming an appropriate schema may actually interfere with memory, by interfering with the smooth formation of an impression.

Researchers studying schemas often use memory for schema compatible versus incompatible information as their dependent measure (Cantor & Mischel, 1977; Hastie & Kumar, 1979; Hastie, 1980; Graesser, 1981; Cohen, 1980). Researchers use this dependent measure, because memory for different types of information reflects the extent to which schemas guide attention. The assumption of theory driven processing is that schema (i.e., theories) lead us to favour encoding consistent information and cause us to neglect encoding inconsistent information. Similarly at retrieval, schemas help us locate consistent but not inconsistent information. Presumably then, one ought to find greater memory for consistent than inconsistent information.

Some literature shows greater memory for consistent information (Cantor & Mischel, 1977; Cohen, 1981) while

other research shows greater memory for inconsistent information (Hastie & Kumar, 1979; Graesser, 1981). Hastie (1980) has suggested that both consistent and inconsistent information are equally well remembered if the statements are also relevant to the schema identifying the target. Graesser (1981) contends that since people are unable to reject schema consistent statements that were not in the stimulus materials, then there is no discriminable memory for consistent information. Theory driven memory encompasses both of these positions.

Theory driven memory is important both on recall and recognition memory tests. When people are asked to recall information about a person they use their schema for that person as the source of information. This method is likely to result in reporting predominantly consistent information, sometimes even in reporting information which was never presented. Similarly, when people are confronted with an item of information and asked whether they have seen it before, the appropriate schema is accessed and compared to the item. If the item is consistent with the general impression, people are more likely to conclude erroneously that it has been encountered before than if the item were inconsistent with the general impression. Presumably, as more of the schema becomes active, it can have stronger effects on information processing. This assumes a

conceptual isomorphism between priming an identification schema to different degrees and the degree of theory driven processing. Logically, memory for type of information (consistent vs inconsistent) will interact with the strength of the identification prime on both recall and recognition tests.

The Effects of Strategies

Descriptions of targets are affected by processing strategies, as well as by processes through which the identification schema has been identified. Strategies can affect the level of abstraction of the constituent schemas (Zajonc, 1960), as well as the focus of attention (Higgins & King, 1981). For example, Higgins & King (1980) primed subjects with a strategy for thinking about containers and contents in order to facilitate subjects solving Duncker's (1945) classic candle task. In this task subjects are given a cardboard wall, a box of tacks, a candle and a book of matches and are asked to fasten the candle to the cardboard wall, as quickly as possible, so that the candle will burn and not drip wax onto any surfaces. Prior to trying this task, subjects saw a series of slides of containers and contents which were labelled for subjects either as "container of contents" (e.g., a tray of tomatoes, a carton of eggs) or as "container and contents" (e.g., a tray and tomatoes, a carton and eggs). Subjects given the

container-and-contents strategy solved the task more frequently than did subjects in the control or container-of-contents conditions. Therefore, priming different strategic approaches to data differentially affected problem solving. Within a completely different experimental paradigm, Becker (1980) demonstrated that for lists of word pairs, a strong predictive relationship between the cue word and the succeeding word produced strong facilitation for reading the succeeding word, while the converse was true for lists of words where the cue words were poorly predictive of succeeding words. According to Becker, different types of relationships lead to using different strategies for anticipating the next word. Higgins & King (1981) and Becker (1980) provide two examples of how strategies affect non-social types of tasks.

Cognitive strategies probably also affect social interactions. Zajonc (1960) was concerned with strategies for dealing with social information. He assumed that a person's role in a conversation affected how one dealt with information in the conversation. Thus, listeners (reception set) respond differently to information than would speakers (transmission set). Reception sets use structures which favour a general level of descriptiveness, and are flexible enough to encompass a set of contradictory information. For example, information containing both schema consistent and

inconsistent information. Transmission set structures favour a more specific level of descriptiveness, and are inflexible in that they can handle only self-coherent information. For example, they can handle either schema consistent or inconsistent information, but not both. His data supported his hypotheses. Reception sets produced characterizations of the target that were more abstract than those produced by the transmission set. Transmission sets led to characterizations of the target in terms of specific attributes, whereas, reception sets led to characterizations in terms of more general and encompassing characteristics. For example, given the sentence "Tim is a violinist with the Edmonton Symphony Orchestra.", a transmission set subject might recall it as 'He is a violinist.' while a reception set subject might recall it as 'He is a musician.'. Other studies have supported Zajonc's conclusions regarding the flexibility of the reception set and the inflexibility of the transmission set (Cohen, 1961; Brock and Fromkin, 1968; Mazis, 1973; Harkins, Harvey, Keithly, and Rich, 1977).

In both the Zajonc (1960) and the Harkins, Harvey, Keithly, & Rich (1977) studies, the results in the control conditions are indistinguishable from results in the reception condition. A reception strategy is analogous to a default strategy. This implies that the usual response to a new person is not to form an impression except at a very

abstract level (i.e., good/bad), until all the available data has been gathered.

Therefore, in addition to finding schema-content effects on memory, we also expect the degree of generality (level of descriptiveness) of the schema to affect memory. Zajonc (1960) showed that tuning set affects the level of descriptiveness (generality/specificity) of the recalled items. Similarly we expect tuning set to influence recognition memory by affecting responses to the level of descriptiveness of the alternatives. Reception subjects will be more likely than transmission subjects to recognize general statements accurately; whereas, transmission subjects will be more likely than reception subjects to recognize detailed statements accurately. Also, errors may result from false recognition of level compatible statements. Subjects in the reception set may make errors by falsely recognizing abstract transformations of presented statements while transmission set subjects may err by falsely recognizing detailed transformations of presented statements. For example, if the orginal sentence was "Tim is a violinist." a reception set subject may falsely recognize "Tim is a musician.", because they have poorly encoded the detail of the statement although retaining the gist. On the other hand, if the presented statement was "Tim is a musician." a transmission set subject may falsely

recognize "Tim is a violinist.", because transmission subjects know they have a lot of detailed information about the target, and "Tim is a violinist." is a detail. That is, the level of descriptiveness is compatible with the dominant level of descriptiveness in their schema. Logically, level compatible (general or specific) false recognitions seem more reasonable in the reception set condition than in the transmission condition, because the reception set lacks the detail to conflict with distractor items.

While strategies and schemas for entities may affect our understanding of events independently of each other, they may operate interactively as well. We shall examine the effects of both strategies and identification schemas on memory for social information. The type of global strategy is expected to interact with the identification schema. Since reception and transmission sets engage different strategies, they will lead to different organizations of the information in the target description, as happened in Zajonc's (1960) study. Organization and comprehension of the same target information depended upon which strategy subjects used. If in addition, an identification schema were primed to varying degrees, attention would be focused on different details in the transmission conditions and on different encompassing traits in the reception conditions.

Apart from promoting contrasting characterizations of the target, various combinations of levels of identification schema and strategies are likely to produce differences in the amount recalled. Transmission sets focus the subject on details about the target, leading to an increase in items recalled over subjects in the reception set. Priming identification schemas to different degrees will serve to vary the degree of schema activation. Stronger primes will lead to greater schema activation than will weaker primes, resulting in recall of more items. Since both transmission set and priming increase the amount recalled, the combination of a strong prime and transmission set should produce greater recall than transmission set and no prime: similarly, reception set and strong prime should promote recall of more items than reception set and no prime. The effect of the prime in the reception set condition should be less than that in the transmission set since being open and receptive to information may lead to interference. Interference will result from reception set subjects discounting detailed information in favour of a more abstract level of description. The latter expectation is derived because more general organization can encompass more subsequent information better than specific levels of description.

Predictions

The main prediction is that the strategy used and the extent to which schema information is available will interact to produce effects on memory. Of lesser importance, but of interest, are predictions of main effects and replications of previous work. Recall and recognition will be used to assess subjects' memories of the target.

Priming X Strategy. It was expected that for transmission set subjects, recall is a positive increasing function of the strength of the prime. Overall, subjects in the reception set were expected to recall less than subjects in the transmission set, although amount recalled should increase with increasing strength of the prime. A strong identification prime should force a more detailed characterization of the target leading to a sharp increase in recall. A larger difference in number of items recalled between reception and transmission sets was expected at the two lower strength prime levels than at the strong prime level. For recognition, reception subjects were expected to show a decrease in accuracy or no change for specific statements and an increase in accuracy for general statements between the 'no prime' and 'moderate prime', but transmission subjects were expected to show an overall increase in accuracy for the same levels of prime. At the strongest level of prime, it was anticipated that reception

set subjects would increase in accuracy relative to their performance at a moderate level.

Priming X Consistency. There is support for the contention that schemas function like theories, leading us at encoding to search for schema-predicted kinds of data and to organize it in goal compatible ways. This increases the probability of our locating schema-compatible information at retrieval. Since priming increases the extent to which a schema is active, thereby manipulating the degree of theory driven processing, priming and information consistency were expected to interact. The interaction on recall was expected to show increasing recall of consistent information and decreasing recall of inconsistent information with increasing strength of prime; whereas the interaction on recognition was expected to show increasingly poor discrimination between presented and unpresented consistent information with increasing strength of prime.

Strategy X Level of Descriptiveness. Because reception set leads to characterizing the target at an abstract level, it was expected that more false recognitions of information would occur than in the more detailed transmission set. False recognitions should increase because reception sets do not engage the detail necessary to produce conflicts with consistent but previously unpresented statements. Thus, a reception set subject might falsely

affirm the statement "Tim plays the viola." because they have stored the information "Tim is a violinist with the Edmonton Symphony Orchestra." as "Tim is a musician." and "Tim plays the viola." is consistent with this statement.

In terms of recall, we expected to replicate Zajonc's results (1960). Transmission set subjects will recall more than reception set subjects, and reception set subjects will recall a lower proportion of specific information than will transmission set subjects.

Strength of Prime. Two conflicting predictions were made for recognition. The first prediction rests on the assumption that recognition is data-driven and that some sort of match on the basis of recency of activation can be made. By data-driven, we mean only that an episodic memory for the text exists independently of the stored impression of the target person and that recognition tests make using the episodic trace easier than do recall tests. [2] According to this view, priming affects recognition by increasing hits and decreasing false alarms with increasing strength of prime. This is because (1) stronger primes lead to stronger traces or degree of activation for presented information compared to unpresented information, and (2) the trace or activation strength determines the outcome of the new-old

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[2]This is more a function of the stimulus materials being a description of a person than it is a function of recall or recognition processes per se.

decision. The second prediction requires the assumption that priming leads to theory driven processing. In this case interference produced by the prime would cause an inverted u-shaped function for recognition accuracy. A moderate prime would produce the highest overall accuracy, because it provides an organizing structure for the episode. A strong prime would reduce the subjects' abilities to distinguish between presented and not presented consistent statements, while not affecting their ability to discriminate inconsistent presented and not presented statements. Finally, since subjects in the no prime condition would receive neither the benefits nor the costs of priming, the amount recalled falls somewhere between those of the moderate and strong prime conditions.

Because priming increases the level of activation of the schema, and because an appropriate schema was being primed, increasing strength of the prime increases the amount of information recalled.

Forced Choice vs Serial Recognition Tests

Researchers normally use either a serial recognition or a forced choice recognition test with which to examine subjects' memories. However, using both types of memory tests allows for a way to examine Graesser's assertion that people have no discriminable memory for consistent information. We do this by allowing subjects to choose

between two semantically similar consistent items. If Graesser is correct then subjects will discriminate correctly between the two items only 50% of the time. Any deviation from 50% correct argues against his position.

We agree with Graesser that memory is theory driven and that theory driven memory is affected by the contents of the theory. If a second type of processing can be used in addition to theory driven processing, as for example a search of an episodic trace, then memory is likely to be more accurate than otherwise, especially for consistent information which has the most room for improvement. This is because using an episodic trace can prevent false affirmatives which are more prevalent for consistent than inconsistent information (Cantor and Mischel, 1977; Graesser, 1981). That is, forced choice presentation will not affect accuracy for inconsistent items, but will improve accuracy on consistent items. Therefore, contrary to Graesser's hypothesis, we expect consistent and inconsistent information will be equally well recognized on the forced choice test.

In order to examine this hypothesis both serial and forced choice tests were developed. On a serial test an item is presented, the subject makes a decision and the next item is presented. On a forced choice test two items are presented simultaneously. Usually one of the items will

have been presented and the other will be a foil. Foils can be constructed in many ways. In this study all foils had the same meaning as their pair-mate, but the pair-mates' level of descriptiveness differed from each other. Thus if the correct item was consistent and general the foil would be consistent and either more general or more specific. Therefore, the forced choice items form a 2-Information consistency (consistent vs inconsistent) X 2-Level of the correct item (general vs specific) X 2-Type of transformation producing the foil (more general vs more specific) design.

Method

Subjects & Design

Ninety female students participated in the study in return for partial course credit. The design of the experiment is a 3-Content specific prime (no prime, moderate prime, strong prime) by 2-Strategy (reception vs transmission) between subjects design. Information consistency (consistent versus inconsistent) and Level of Descriptiveness (general versus specific) were assigned within subjects. The primary dependent measures were recall and recognition of target information.

Pilot Testing

Pilot subjects were asked to rate a number of sentences for how well they described the subjects' conceptions of a physically violently aggressive man. Some of these items were used to form five paragraphs which constituted the target description. Each paragraph was presented as coming from a different person who knew the target and who related information about the target. For example the second, third, and fourth paragraphs were supposedly extracts from interviews with the target's best friend, an ex-girlfriend, and the target's grade 12 math teacher. The sources for the first and last paragraphs were unspecified. A different group of pilot subjects rated the target as highly aggressive and highly likely to be in fights and arguments,

thereby confirming that the paragraphs maintained the impression conveyed by the items selected from the initial pilot test. A third group rated items in the description for consistency with subjects' conceptions of an aggressive man. These data showed that we were successfull in roughly balancing the numbers of irrelevant, consistent and inconsistent statements. (see Appendix A.1) A final group of subjects rated each sentence on a scale from (1) very general descriptor to (9) very specific descriptor. [3] There are roughly equal numbers of general and specific statements in the target description (see Appendix A.1).

The pilot studies were conducted not only to validate the stimulus materials, but also to identify distractors for the recognition memory tests. Items on the serial recognition test either were presented in the target description or were not presented (old versus new). The new items are of 4 types: (1) statements consistent or inconsistent with the "aggressive man" schema (Stereotype consistency), (2) statements consistent or inconsistent with the target description (Target consistency), (3) statements which are more abstract forms of presented statements, and (4) statements which are more specific forms of presented

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[3]The distribution of general and specific statements is related to the placement of statements in the description: earlier statements are more likely to be rated as general, while the later statements are more likely to be rated as specific.

statements (items 3 and 4 were used to form foils for the forced choice recognition items).

Procedure

Up to four female subjects participated in a session. They were greeted at the entrance to the laboratory, where it was explained that they would be in two studies. They were seated in separate cubicles and heard taped instructions. Subjects were asked to look at slides of lines in boxes and expected to reproduce the lines in a workbook. There were 12 line-drawing trials. On each of the last four trials subjects were asked to hold three words in memory while they performed the line-drawing task and then to write out the three words. In total they remembered 12 words (4 trials with 3 words each). All participants remembered all of the words. These words constituted the strength of prime manipulation and were chosen for their strength of association with pilot subjects' concept of an 'aggressive man'.(see Appendix A.2)

The no prime list consists of words unrelated to the target concept. In the moderate prime list four of the 12 words are moderately related to the target concept and 8 are unrelated. And in the strong prime list 4 words are unrelated, 4 are moderately related, and 4 are strongly related to the target concept. In the moderate prime condition each set of 3 words has one moderately related

word and 2 unrelated words, while in the strong prime condition there is one each of unrelated, moderately, and strongly related words. Thus both the frequency of use of the 'aggressive man' schema and the centrality of the words used to engage the schema differ between the moderate and strong prime conditions. At the end of the 12th trial, subjects' workbooks were collected, the subjects were thanked for their participation, and instructions for the second experiment were given. (see Appendises B.1 and B.2)

Subjects were told that the second study was about communication and that they would read about another person and then communicate about him with a third person. Half of the subjects believed they would be transmitting information while the other half of the subjects believed they would be receiving more information about the target later in the study. (see Appendix A.1) A covering sheet on the target description manipulated which strategy (reception or transmission) the subjects used and the experimenter reminded them before they began to read. Subjects were asked to study the target for 5 minutes. At the end of the study period, they were given 10 minutes for recall. Subjects were asked to recall as much about the person as they could and to describe what they thought the person was like. Subjects were asked to indicate which items of their recall were taken directly from the description and which

reflected their opinion or an inference, but were not explicitly stated in the description. (see Appendix B.1)

Following the recall test, subjects did the recognition test. (see Appendix B.2) Slides of either pairs of items (forced choice) or individual items (serial recognition) were presented for 10 seconds, and the time between slides was 6 seconds. On serial items subjects indicated whether the item was in the target description (yes or no) and then rated how sure they were about their decision on a 9 point scale (1=not at all sure; 9=very sure). On the forced choice items the subjects judged which of the sentences had been presented (A or B), and then indicated their confidence on the 9 point scale. At the completion of this task, subjects were thanked and debriefed.

Dependent Measures

Four types of dependent measures were used. Each of the dependent measures is listed in Table 1. The main dependent measures are recall and recognition memory. Recall is used because the style of reporting a remembered item varies with the subjects' sets (Zajonc, 1961). Recall also provides participants with an opportunity to express opinions and inferences about the target. The level of descriptiveness as well as the degree of consistency of the inferences provides a second set of dependent measures, which may indicate how target information is combined.

Table 1

Type of dependent measure.

I. Recall:
   A) Strict criterion: verbatim recall
   B) Looser criterion: scored as recalled if recall item referenced the target item at the same level of descriptiveness or a more general or specific level.

II. Recognition:
   A) Forced Choice: foils are either more general or more specific than the target items which vary by Prime (Stereotype) consistency and Level of Descriptiveness.
   B) Serial Recognition: i) items vary by Prime (Stereotype) consistency, Level of Descriptiveness, and old vs new.
   ii) false items varying by Prime (Stereotype) consistency, Target consistency and Level of Descriptiveness.

III. Recognition Confidence:
   A) For each of IIa and IIb subjects indicated their confidence in their decisions.

IV. Inferences:
   A) Opinion statements generated during recall. Broken down by
      i) presence or absence of subjects indication that recall item was an opinion statement.
      ii) presence or absence of the label 'aggressive'.
      iii) consistent, inconsistent or neutral
      iv) general or specific

The second major memory measure is recognition memory. Because serial recognition provides more cues to memory than does recall by providing subjects with an item they can compare to items in their memory set, serial recognition may

be more sensitive than recall. Similarly, forced choice recognition may be more sensitive than serial recognition because subjects know that one of the items in the pair is a perfect match for something in memory. Forced choice to a greater degree than serial recognition allows subjects to check memory for items independently of the schema. Subjects ratings of how sure they were about their decisions were collected for each recognition item.

Results

Dependent measures in the text will be distinguished by reference to Table 1. [4]

Recognition and Recognition Confidence

The first serial recognition dependent measure was percent correct recognition of statements all of which were false and which vary in terms of their source of consistency and level of descriptiveness (see Table 1, item II.B.ii.) These data were analyzed by a mixed analysis of variance with Prime and Set assigned between subjects and Level of Descriptiveness (general, specific) X Stereotype (consistent, inconsistent) X Target (consistent, inconsistent) assigned within subjects. The confidence data were analyzed using the same design.

The false serial recognition data produced significant main effects of Stereotype consistency, $F(1,82)=11.294$, $p<.001$ and Target consistency $F(1,82)=170.564$, $p<.001$. Subjects accurately recognized more stereotype inconsistent (87%) information than stereotype consistent (83%) information. Similarly, subjects accurately recognized more target inconsistent information (94%) than target consistent (76%) information. The Target consistency main effect is qualified by a significant Prime X Set X Target consistency interaction, $F(2,82)=3.233$, $p<.045$. The mean values for the

[4] All source tables are in Appendix C.

Table 2

Recognition accuracy for false items as a function of Prime, Set and Target Consistency.

	Strength of Prime		
	None	Moderate	Strong
Reception			
Consistent	83 b	71 a	80 b
Inconsistent	97 c	92 c	96 c
Transmission			
Consistent	71 a	77 ab	77 ab
Inconsistent	94 c	90 c	93 c

Means with different subscripts differ at alpha less than .05 by Duncans New Multiple Range Test.

interaction are reported in Table 2. As the table shows, there are no differences between reception and transmission subjects on inconsistent information at any level of prime and both reception and transmission subjects recognize inconsistent information more accurately than consistent information. The difference between reception and transmission subjects memory for consistent information is greater under no prime than under moderate or strong prime conditions although the difference among differences across levels of prime is not significant.

There is a marginal Level of Descriptiveness X Target consistency interaction, $F(1,82)=3.641$, $p<.060$. Although

inconsistent information is better recognized than consistent information, consistent general information is better recognized than consistent specific information (78% versus 75%) whereas, level has no effect on memory for inconsistent information (93% versus 94%). Duncans multiple range test failed to identify the source of the interaction.

Subjects' confidence (Table 1, item II.B.ii confidence) was affected by the Level of Descriptiveness, $F(1,81)=7.512$, $p<.008$, such that subjects were more confident of specific information (8.08) than general information (7.96). Confidence was also affected by target consistency, $F(1,81)=91.396$, $p<.001$. Subjects expressed more confidence when statements were inconsistent (8.34) than when they were consistent (7.69).

The second serial recognition dependent measure involves recognition accuracy and confidence for items which vary in terms of whether or not they were in the target description, Level of Descriptiveness, and Stereotype consistency (see Table 1, item II.B.i.). In this analysis all items were necessarily target-consistent (as opposed to stereotype consistent)in order to avoid confounding presence/absence with target consistency. That is, any item present in the target description must be consistent with the target description, since a thing must be consistent with itself. There cannot be a "true" statement which is

target inconsistent. Because there cannot be an item which is both old and target inconsistent, and therefore all of the items are target consistent, although they may vary with respect to stereotype consistency. The design for the analyses was Prime X Set assigned between subjects X Level X Stereotype Consistency X Item type (old, new) assigned within subjects. There were two significant interactions in the serial recognition data, a Level X Item type $F(1,81)=4.771$, $p<.032$, and a Consistency X Item type $F(1,81)=15.141$, $p<.001$ interaction both of which qualify the significant main effect for presented $F(1,81)=9.191$, $p<.003$. The mean values are reported in Tables 3 and 4. As can be seen from Table 3, the difference between old and new general information is less than the difference between old and new specific information, showing that recognition accuracy is significantly better for old items than for new items. From Table 4, it can be seen that the difference between consistent old and consistent new items is greater than that between inconsistent old and new items. Moreover, consistent new items are recognized least accurately.

Serial recognition confidence was affected by a Prime X Set X Level interaction, $F(2,78)=3.243$, $p<.044$ which qualified a significant Prime X Level interaction,($F(2,78)=4.674$, $p<.012$), and Level main effect $F(1,78)=6.433$, $p<.013$. The mean values for the three way

Table 3

Recognition accuracy for serial recognition as a function of Level and Presence.

Level	Presence in Target Description Old	New
General	82 b	78 ab
Specific	83 b	75 a

Cells with differing subscripts differ at alpha less than .05 using Duncans New Multiple Range Test.

Table 4

Recognition accuracy for serial recognition as a function of Consistency and Presence.

Consistency	Presence in Target Description Old	New
Consistent	85 b	75 a
Inconsistent	80 ab	78 ab

Cells with differing subscripts differ at alpha less than .05 by Duncans New Multiple Range Test.

interaction are in Table 5. As can be seen from the table, none of the differences among means for transmission subjects is significant. However, the difference between general and specific information for moderate prime reception subjects is significantly different while the differences under no prime and strong prime are not.

Table 5

Serial recognition confidence as a function of Prime, Set and Level.

	Strength of Prime		
	None	Moderate	Strong
Reception			
General	7.99 cd	7.52 a	7.57 abc
Specific	7.98 cd	8.03 d	7.45 a
Transmission			
General	7.55 abc	7.66 abc	7.72 abc
Specific	7.82 bcd	7.82 bcd	7.72 abc

Cells with differing subscripts differ at alpha less than .05 by Duncans New Multiple Range Test.

The third set of recognition data is the forced choice data (Table 1, item II.A). Subjects saw both an item from the target description and a foil. The foils always conveyed essentially the same meaning as the target item. Thus both items in the pair are either consistent or inconsistent. The foils differed only in that they were either more general or more specific than the target item. The design for the analyses of these data was a Prime X Set assigned between subjects, X Type of Foil (more general, more specific) X Level X Consistency assigned within subjects. There was a Type of Foil X Level X Consistency interaction in both the forced choice recognition data,

$F(1,84)=64.435$, $p<.001$, and the forced choice confidence data $F(1,84)=21.321$, $p<.001$. The mean values are presented in Tables 6 and 7 respectively. As can be seen from Table 6, when the target information was specific there were no differences between consistent and inconsistent information as a function of the type of foil, but when the target sentence was general, the difference between consistent and inconsistent information was greater with a more general foil. In the memory data, all subordinant effects were significant.

As can be seen from Table 7, for the forced choice confidence data the form of the interaction for general target statements is different from the form when the target statements are specific. When the target statements are general there is a crossover interaction formed by Consistency and Type of Foil, such that if the type of foil is general then consistent statements are processed more confidently than inconsistent statements, and the reverse is true if the type of foil is specific. On the other hand, when the target statements are specific there is a fan-shaped interaction such that the difference between consistent and inconsistent statements for a general foil is not significant and less than the difference when the foils are more specific. Of the subordinate effects for forced choice recognition confidence only the main effect for Level

Table 6

Percent accurate forced choice recognition as a function of Type of Foil, Level of Descriptiveness and Information Consistency.

Level	Type of Foil	
	General	Specific
General		
Consistent	78 b	89 c
Inconsistent	18 a	98 cd
Specific		
Consistent	96 cd	100 d
Inconsistent	89 c	91 cd

Cells with differing subscripts differ at alpha less than .05 by Duncans New Multiple Range Test.

Table 7

Mean forced choice confidence ratings as a function of Type of Foil, Level of Descriptiveness and Information Consistency.

Level	Type of Foil	
	General	Specific
General		
Consistent	8.011 bc	6.933 a
Inconsistent	7.000 a	8.556 c
Specific		
Consistent	8.122 bc	8.589 c
Inconsistent	7.867 bc	7.656 ab

Cells with differing subscripts differ at alpha less than .05 by Duncans New Multiple Range Test.
$F(1,84)=7.27$, $p<.008$, the Level X Consistency interaction

$F(1,84)=6.219$, $p<.015$, and the Type of Foil X Consistency $F(1,84)=11.68$, $p<.001$ interaction were significant.

In addition, the memory data show a Prime X Set X Consistency interaction, $F(2,84)=3.957$, $p<.023$ (see Table 8). As can be seen from Table 8, strength of prime affects reception and transmission subjects processing of consistent and inconsistent information differently. In reception conditions the difference between consistent and inconsistent information is greater under moderate and no prime conditions than under strong prime although the differences among differences are not significant. The mean values for transmission subjects also form a fan-shaped interaction. Unlike in the reception set condition, the differences between consistent and inconsistent information are greater under moderate and strong prime than under no prime conditions.

Prime and Set form a three way interaction with Level of Descriptiveness in the forced choice confidence data, $F(2,84)=3.541$, $p<.033$. As can be seen from Table 9, under reception set the difference between confidence in processing general versus specific target statements is greater under moderate prime than under strong or no prime. This is due to a large decrease in confidence for general statements under moderate prime. For transmission subjects, the differences among the differences between general and

Table 8
Percent accurate forced choice recognition as a function of Prime, Set and Information consistency.

	Strength of Prime		
	None	Moderate	Strong
Reception			
Consistent	93 d	90 d	87 cd
Inconsistent	77 ab	72 ab	78 bc
Transmission			
Consistent	87 cd	92 d	95 d
Inconsistent	78 bc	68 a	70 ab

Cells with differing subscripts differ by Duncans at alpha less than .05.

Table 9

Mean confidence ratings as a function of Prime, Set and level.

	Strength of Prime		
	None	Moderate	Strong
Reception			
General	8.05 bc	6.93 a	7.85 bc
Specific	8.10 bc	7.93 bc	8.55 c
Transmission			
General	7.67 abc	7.32 ab	7.93 bc
Specific	8.55 c	7.82 bc	7.40 ab

Cells with differing subscripts differ by Duncans at alpha less than .05

specific information across levels of Prime are not

significant. Note however, that for specific information, the difference between reception and transmission subjects under strong prime is significant while it is not significant under moderate or no prime conditions.

A marginally significant interaction of interest in the forced choice recognition data is a three-way interaction among Prime, Set and Type of Foil, $F(2,84)=2.895$, $p<.06$. As can be seen from Table 10, Duncan's Multiple Range test was incapable of distinguishing the source of the interaction. There is a trend for receivers and transmitters to select the general foil and this tendency increases with increasing strength of prime.

Recall

Recall was scored in two ways. The first type of recall is proportion of items recalled (Table 1, item I.A). Subjects had to use the same or some of the same words and phrasing as occured in the text for an item to be scored as recalled. When these data are analyzed in a Prime X Set X Order (paragraph 1, paragraph 2, paragraph 3, paragraph 4, paragraph 5) design, there is a significant main effect for Order, $F(4,336)=54.186$, $p<.001$, indicating primacy and recency effects: the means are 57%, 29%, 30%, 27%, and 52% for paragraphs one to five respectively. When the data for the middle paragraphs are examined independently of the first and last paragraphs, there is a

Table 10
Forced choice recognition accuracy as a function of Prime, Set and Type of Foil.

Set	Strength of Prime None	Moderate	Strong
Receivers			
General	75 a	68 a	67 a
Specific	95 b	93 b	98 b
Transmitters			
General	70 a	67 a	73 a
Specific	95 b	93 b	92 b

All means with differing subscripts differ by Duncans at alpha less than or equal to .05.

Level X Consistency interaction, $F(4,336)=4.489$, $p<.002$ (see Table 11). Of course, the interaction is significant when all the paragraphs are analyzed, but elimination of the first and last paragraphs removes any influence from the primacy and recency effects. As can be seen from Table 11, for general levels of descriptiveness, the difference between consistent and inconsistent information is less than between neutral and consistent or neutral and inconsistent information. When the information is specific the difference between neutral and consistent or inconsistent is still greater than between consistent and inconsistent, but the latter difference is significant. In addition, all differences among means for general and specific levels of descriptiveness are greater than any differences among means

Table 11
Proportion of recalled items, strict recall, as a function of Level of Descriptiveness and Information Consistency.

	Level of Descriptiveness		
	General	Moderate	Specific
Consistent	.205 b	.322 de	.390 d
Neutral	.089 a	.307 cd	.222 bc
Inconsistent	.167 b	.285 cd	.414 e

Cells with differing subscripts differ by Duncans at alpha less than .05

for moderate levels of descriptiveness.

In the second type of recall data, an item was scored as recalled if it referenced a target item at either a more general or more specific level as well as if it referenced the target item verbatimly (Table 1, item I.B). The number of items of each type of information (e.g., general consistent, general inconsistent, general neutral, moderate consistent, etc.) was determined and the number of items of each type information recalled in a more general, more specific or same level was expressed as a proportion of the number of items of that type of information. For example, there are 10 target description items which are both general and consistent. If a person recalled 2 items more generally, 1 item more specifically, and 2 items at the same level as the target description, then their scores for

general consistent recall would be 20%, 10%, and 20% respectively. This new variable is called Recall Style. Recall Style interacts with Level of Descriptiveness and Consistency, $F(8,672)=25.68$, $p<.001$. The mean proportion of recalled items are presented in Table 12.

As can be seen from the table, when target information is consistent (Part A, Table 12), general and moderate level sentences are recalled most frequently at more general or same levels of descriptiveness. When the target statements are specific, recall style is most often at a more general level. If the target statements are neutral, information (Part B, Table 12) is recalled best when phrased at the same levels as in the target description for general and moderate items. While general items are recalled better than moderate items at the same levels of descriptiveness the reverse is true when recall style is a more general or specific level of descriptiveness. Finally, when information is inconsistent (Part C, Table 12) there are no differences across recall style for general information, whereas both moderate and specific information are most frequently phrased in a more general way and least often in a more specific way. Further, while a larger number of moderate than specific items are recalled more generally, more specific than moderate items are recalled at the same level.

Table 12
Proportion recalled for scored recall as a function of Consistency, Level of Descriptiveness and Recall Style.

Consistency	Recall Style: General	Same	Specific
A. Consistent			
General	.13 fghi	.17 ij	.02 a
Moderate	.14 ghi	.20 jk	.03 a
Specific	.34 o	.11 efgh	.09 cdef
B. Neutral			
General	.04 ab	.29 mn	.03 a
Moderate	.13 fghi	.24 kl	.10 defg
Specific	.20 jk	.12 efgh	.10 defg
C. Inconsistent			
General	.08 bcde	.05 abc	.06 abcd
Moderate	.33 no	.15 hi	.02 a
Specific	.29 mn	.25 lm	.04 ab

Cells with differing subscripts differ by Duncans at alpha less than .05.

Inferences

Subjects were told they could characterize the target on the recall test but that they had to indicate which of their recall items were recalled from the description and which were opinions. Subjects inferences ranged from short, terse one word descriptors (e.g., 'aggressive') to complex descriptions of the target's family life and its effects on him. In most cases subjects complied with the request to

label inferences, however sometimes there were items that clearly did not come from the target description and that were not labelled as opinion statements (Table 1, item IV.A.i). The number of labelled and unlabelled inferences was analyzed in a Prime X Set X Label mixed analysis of variance. Reception subjects drew more inferences than transmission subjects (2.89 and 2.13 respectively), $F(1,84)=5.793$, $p<.018$. Further, while most inferences were labelled as such (3.04) some were not (1.98), $F(1,84)=10.271$, $p<.002$. A comparison of the Level of Descriptiveness of the inferences (Table 1, item IV.A.iv) showed a marginal main effect of Level, $F(1,84)=3.588$, $p<.062$. Inferences tended to be specific (4.12) rather than general (2.5). When the inferences were examined for their consistency with the primed stereotype (Table 1, item IV.A.iii), both Set and Consistency produced significant main effects, $F(1,82)=6.501$, $p<.013$ and $F(2,82)=72.069$, $p<.001$, respectively. Reception subjects made more inferences than transmission subjects (1.818 versus 1.303). The mean values for consistent (2.67), inconsistent (1.705) and neutral (.307) inferences were all significantly different from each other using Duncans New Multiple Range Test. Finally, subjects data were scored for whether the subject actually used the labels 'aggressive' or 'violent'. This produced a marginal main effect of prime strength,

$F(2,84)=2.965$, $p<.057$. The no prime and strong prime means were both 23% while the moderate prime mean was 3%, suggesting that moderate prime subjects had the greatest difficulty forming an impression of the target.

Conditional Probabilities

The conditional probabilities for recognition of a presented item given recal [p(recognition|recall)] were calculated for the different combinations of Level of Descriptiveness and Information Consistency. These probabilities were analyzed in a Prime X Set X Level X Consistency mixed analysis of variance. Main effects for Level [$F(1,82)=39.598$, $p<.001$, $MSe=.130$)] and Consistency [$F(1,82)=39.598$, $p<.001$, $MSe=.108$)] were significant, as was the Level X Consistency interaction, $F(1,82)=76.674$, $p<.001$, $MSe=.155$. The means for the interaction are presented in Table 13.

Table 13

Conditional probabilities for recogniton given recall.

	Level	
	General	Specific
Consistent	.818	.690
Inconsistent	.233	.835

The results show that when an item has been recalled it is very likely to be recognized also *except* when the item is both inconsitent and general. While one can recall inconsistent general items, subsequently one is unlikely to

recognize them.

Discussion

The logic underlying the priming X set predictions was that the effects of priming and tuning set would sum producing two main effects forming a fan-shaped interaction. Theory-driven processing induced by the identification prime was expected in the strong prime condition, to overcome the reception set capacity to deal effectively with conflicting information leading to increased impression polarization. This polarization would lead subjects in the strong prime-reception set conditions to have as good memory as their transmission set counterparts. In addition, theory-driven processing was expected to affect memory for consistent and inconsistent information. Recall would favour memory for consistent over inconsistent information with increasing strength of prime, while recognition would show a reduction in accuracy for consistent information under these circumstances. Prime X set interactions, which were modified by higher order interactions, were found for the recognition data. Prime and set interacted with consistency on both the serial false recognition items (Table 1, item II.B.ii, and Table 2) and on the forced choice items (Table 1, item II.A and Table 8).

The serial recognition data for reception set conditions followed the predicted pattern, but transmission data showed the opposite trend. People in reception

conditions showed a decrease in accuracy for consistent information between no prime and moderate prime conditions, but then there was an unexpected recovery to no prime levels of accuracy for people in the strong prime condition. People in transmission conditions showed an increase in recognition accuracy between no prime and moderate prime conditions, with no change between moderate and strong prime conditions. Thus the reception set subjects behaved as predicted, at least for the differences between no prime and moderate prime, while the transmission set subjects do not.

When the forced choice data are examined, again reception set subjects behave as predicted. However, it should be remembered that the forced choice mean differences did not achieve significance using Duncan's Multiple Range Test in a way that is supportive of the following interpretation. In these data, the decrease in recognition accuracy for reception set subjects on consistent information continued between moderate and strong prime conditions and the increase in accuracy for transmission subjects continued to increase between moderate and strong prime conditions.

These are very interesting results since they demonstrate how the same process(es) (in this case, response biases) under different setting conditions can produce different results. The usual reception set effect is that

people form nonpolarized impressions of the target, while the reverse is true for people in transmission conditions. For example, Brock & Fromkin (1968) have shown that transmitters show a distinct preference for consistent information. Under no prime conditions transmitters were more influenced by a response bias for consistent information than were receivers. Priming effectively polarized receivers' impressions such that primed receivers behaved like not-primed transmitters. On the other hand, the normally polarized transmitters became less polarized with increasing prime. The reduced polarization may have occured because priming extended the usually narrow structure used to encode information. Broadening the encoding structure or theory could potentially moderate the impression (cf Nisbett, Zukier, and Lemley 1981). In conclusion, priming seems to have narrowed the schema used by receivers while expanding that used by transmitters with the result that theory driven processing produced a stronger consistent information response bias for receivers than for transmitters.

In addition to these findings there is an interesting difference in the pattern of results between the false serial and forced choice recognition data that is pertinent to the issue of theory driven processing. Inconsistent information is recognized correctly more often than is

consistent information in the serial recognition data. But for the forced choice data, consistent information is recognized correctly more frequently than is inconsistent information. The serial recognition data shows the usual pattern which some have interpreted to mean that people either do not store or do not access consistent information as effectively as they do inconsistent information (cf Graesser, 1981; Hastie and Kumar, 1977). Applying their logic to the forced choice data, however, one would conclude the opposite.

Although this aspect of the data appears anomalous other results suggest that subjects were behaving in the usual sorts of ways. For example, on the serial recognition test containing both presented and unpresented items (Table 1, item II.B.i), the usual crossover interaction between consistency and old/new items is seen (Table 4). Thus, it appears as though subjects almost always confirm consistent statements producing greater apparent accuracy on old than new consistent statements, but treat inconsistent items differently. The usual reason given for this interaction is that subjects are biased to respond yes to consistent information and to process inconsistent information accurately (Graesser, 1981; Cantor & Mischel, 1977).

If there is a response bias then why should theresults for forced choice and serial recognition data be so

different: one showing better memory for consistent information with the other showing better memory for inconsistent information. Presumably, a response bias should always produce the same results. But since the setting conditions are different for receivers and transmitters, it is possible that both patterns were produced by the consistent information response bias. As mentioned earlier, the reason for including forced choice items was to permit both data-driven and theory driven processing to occur. Presumably, serial recogniton would be theory driven, while forced choice recogniton would be both data-driven and theory driven. Forced choice would use both, since reference to some sort of episodic memory would be necessary to discriminate between two items with similar meanings but different representations. This would mean that forced choice tests should produce greater accuracy than serial tests; but at least in this study, they do not. The forced choice test did promote accuracy for consistent information, as expected, but it suppressed accuracy for inconsistent information. The effect on inconsistent information was not anticipated.

A response bias for consistent information can account for the different patterns of results between serial and forced choice recognition. If people really do have a bias for confirm consistent information, then when the items are

always false, (i.e., the correct answer is to disconfirm), the bias would promote accuracy for inconsistent information relative to a situation where there was a mix of true and false items, while suppressing accuracy for consistent information. For example, the tendency would be to confirm consistent information, which gives an incorrect answer, while rejecting inconsistent information, which gives a correct answer. Thus, the response bias favours inconsistent over consistent information when all items are false.

On the other hand, in a forced choice situation, the response bias favours consistent information, since by definition the correct item in a pair is a defining characteristic and must be more consistent with itself than the incorrect item could be. Therefore, the forced choice increase in accuracy for consistent information over the false serial recognition need not stem from data-driven processing.

Similarly, a response bias to reject inconsistent information could lead to an apparent suppression of accuracy for inconsistent information. First, a forced choice item having a pair of inconsistent statements is more difficult to deal with than one having a pair of consistent statements, because the person is asked to identify the less inconsistent statement in the pair. That is, with

consistent statements the response bias is to select the most consistent statement and that will give you a correct answer. In the case of inconsistent statements the bias leads a rejection of all inconsistent information; but, the subject cannot do this because in this case one of the inconsistent statements actually was presented. Thus the response bias interferes with the subjects' abilities to select the correct item. Subjects' accuracy can as easily have resulted from choosing the more consistent item from the pair of inconsistent items (i.e., working with the response bias) than by making use of data driven processing.

As has been demonstrated, the results for both serial recognition and forced choice recognition can be explained without appealing to data-driven processing. As a result, one cannot draw conclusions about differential storage and accessability of consistent and inconsistent information on the basis of comparing forced choice and serial recognition results. Since the same response bias can produce such divergent appearing results, researchers should be careful when testing memory and when formulating their hypotheses. One would want to avoid simplistic assertions that this type or that type of information would inevitably be better remembered than some other type. For example, one would want to avoid statements asserting that a response bias for consistent information would inevitably lead to the

appearance of better memory for consistent information.

Another interesting conclusion is that independently of the instructions subjects receive on how to treat the data (i.e., independently of strategy) subjects formed an impression of the target governed more by target information than by stereotype information. This is supported by the false serial recognition interaction with target not stereotype consistency. This result is compatible with a number of other similar results in other studies. Higgins et al (1977) found that independently of what traits were primed, subjects used only those traits which were appropriate to the target description when describing the target. Similiarly Hoffman (1981) found that subjects were more willing to draw inferences based on the target description than they were willing to draw inferences based on the stereotype from which the target description was derived. These three studies strongly suggest that while a stereotype may form the basis of a target impression, the stereotype is quickly personalized by the target information.

This may be the basis for the finding in other studies that receivers make more moderate attributions than do transmitters (Cohen, 1961; Mazis, 1973; Harkins, Harvey, Keithly, & Rich, 1979). We know that reliance on stereotypes leads to extreme attributions while the presence

of even mundane and apparently attributionally irrelevant information has a powerful moderating effect on attribution extremity (Nisbett, Zukier and Lemley, 1981). It seems likely that receivers are prepared to discard quickly any stereotype they may use as the basis for their impression. On the other hand, transmitters want to develop an impression as quickly as possible (cf Cohen, 1961). The easiest way to do this is to retain the stereotype and to emphasize consistent information. Brock & Fromkin (1968) found that transmitters were more likely than receivers to focus on consistent information at the expense of inconsistent information. However, it is reception not transmission which forms the default approach to person information. Thus in every day life, it is likely that under normal circumstances people are willing to give other people, when first they meet, the benefit of the doubt and to deal with them on a wait-and-see basis. It would be interesting to see if the stereotype is completely suspended once target information starts to be received or whether it is still used to provide default information when relevant target information is lacking. Since, possibly one underlying process of prejudice is an unwillingness to suspend the stereotype, another interesting line of inquiry would be to compare willingness to draw inferences from the stereotype vs the target when the target is an object of

prejudice.

A major hypothesis not receiving support in the study was that tuning set leads people to make level compatible errors. In particular, reception subjects were expected to be less accurate for general not presented than general presented items. The data support the general expectation that identification prime strength and strategy (tuning set) interact, focusing people on varying amounts of general and specific information. Both receivers and transmitters err more frequently with general than specific foils, and there is a nonsignificant trend for the effect to be stronger for receivers than transmitters. However, there is no evidence that transmitters are more likely to err on specific foils than are receivers. It is important to note that the effect is weak ($p<.06$), and occurs only for the forced choice data between moderate and strong primes, and not for the serial recognition data. That is, it occurs only when there are two items from which to choose, and the foil and target item have the same meaning and differ only in terms of level of descriptiveness; whereas, in the serial recognition data items can differ from the target description in terms of consistency, or level of descriptiveness. Receivers are more likely to make level compatible errors only if they are comparing the false item to the target item, when they will err by choosing the more general foil. This would suggest

that people, especially those in reception sets have preferences for general information. These data suggest, rather than a level compatible response bias, a bias for general information.

The prediction of level compatible errors was based on the assumption that reception subjects would make encoding errors when confronted with specific information and transmission subjects would make retrieval errors when confronted with specific information. Thus reception subjects were expected to ignore details at encoding and consequently have only a very general framework available for retrieval. Transmission subjects were expected to encode detail deliberately, leading to confidence that they knew many details about the target and producing a response bias for specific information. If receivers were not encoding details then one would expect they would lack confidence about specific information and recall fewer details than transmitters. But neither event occured. Both receivers and transmitters recalled proportionately more specific than general information, for the forced choice data transmitters became less confident about specific information as prime increased, and reception set subjects were less confident of general information at moderate prime than at either no prime or strong prime.

A likely account fo these data is that anyone forming an impression (both receivers and transmitters) has a response bias for general information because it can subsume specific information thereby helping to provide the impression with an organizing structure. Therefore, both recievers and transmitters are biased toward general information. The lack of a specific level bias for transmitters may simply result from specific information being more memorable and hence less easily confused. The confidence results stem from the identification prime more than from the strategy. In order to clarify this statement it is necessary to examine and speculate on what the identification prime does.

Reception and transmission sets produce different structures and organizations of the same information. Inducing a reception set results in construction of a general flexible schema that facilitates computation of an impression that considers all of the available data. When no set instructions are given, people tend to generate their own reception set: i.e., control groups and reception groups behave similarly (Harkins, Harvery, Keithly & Rich, 1977). Presumably, people are very experienced at forming impressions of others, since this seems to be the automatic approach taken when processing information about people, and so it is unreasonable that people should lack confidence

when working with their "professionally" produced impressions.

It is conceivable that this could happen if the following conditions are met. Implicit in the following argument is the assumption that impression formation processes have as their terminating condition some sort of 'satisfaction level'. The purpose of the satisfaction level is to tell people they can stop compiling information about the target - that they have a sufficiently good impression with which to work. Conceivably, strongly priming an impression could simultaneously interfere with the construction of a target based impression, as well as facilitating it. One, if the primed impression is considered to be a stereotype, and two, if reception instructions set us to form a flexibly organized impression (Mavis, 1973; Cohen, 1961) by throwing away the stereotype content but keeping the organizing structure, then priming a ready-made impression may make the reception set task more difficult. First, one needs to suspend the ready-made impression which in this case was not merely an appropriate stereotype but it was an exceptionally good fit to the target. Second, one still needs to delay formation of one's own impression after having experienced a satisfactory one. A moderate prime may sabotage the impression process by leading people to use an inadequate organizing structure as

the basis of the impression. These hypotheses about strong and moderate primes suggest that priming concepts as complex as a personality impression will produce far more complex results than initially anticipated.

How the prime is manipulated, whether the impression is primed directly by activating the specific concept, or indirectly by activating highly typical attributes of the concept will affect the interaction of prime and impression formation strategy. Social psychology has tended to imitate cognitve psychology superficially in the way primes are chosen: primes are simple and short, and tend to be identification rather than strategic. We prime with traits, hoping subjects will use the traits to describe the target. But, traits are modifiers of concepts, not the target concept per se. The distinction is similar to that between categories and the attributes of their elements. Using traits to prime a person concept may be akin to using attributes of birds to prime an exemplar of the category birds. When a prime is, or has been presented, activity is diverted to the primed node and away from the relatively neutral default allocation assigned under normal reception conditions. When the default allocation is more coherent than the primed allocation, then priming will decrease memory, when the primed allocation is as good or better than the default allocation then there will be an increase or no

change in memory. The more complex the task facing a person the more complex the default allocation and the more comprehensive the default strategy will be. If the prime is a trait or set of traits which do not define a structure allowing the organization of many behaviours and events as well as traits, then the prime will interfere with impression formation and memory for target information. Any time traits are used as primes, there is a danger of producing an insufficiently complex organizing structure. This study copied the standard practise of using traits as primes.

Moderate primes were traits moderately related to the target concept of a violently aggressive man, strong primes were strongly related traits, and the traits in no prime were unrelated. Even though a trait is related to the target concept, it can be used to describe other types of people, especially if it is a moderately related trait. The no prime traits which cannot be used to describe the target concept, produce a general positive impression: a person who is sociable, glad, humourous and rational must be a very nice person. When these subjects are presented with a nasty person rather than the nice person they were 'expecting', each node in the nice person schema is contradicted. This contradiction of expectation may produce as powerfully negative an impression as a strong prime. Note, first the

no prime definition produces the opposite category identification to the one needed and second, the category is complex enough to offer a reasonable structure for organizing target information. A strong prime (bitter, serious, assertive, untrustworthy, bad-tempered, rude, hostile and unmethodical) will leads one directly to the specific target concept, and therefore the concept is general enough to organize the target information. On the other hand, a moderate prime (serious, untrustworthy, rude and unmethodical) takes you past the general level of "not nice" accessed by no prime to a specific subset of nasty people without taking you to the specific target concept accessed by strong prime. Since people's semantic networks are organized in fairly idiosyncratic ways, it is likely that the moderate prime made the task more difficult by losing people in their semantic networks at a level which could not organize the target information, perhaps because they were unable to find the target concept. This supposition is supported by the finding that while nearly a quarter of the subjects in the no prime and strong prime conditions labelled the target as aggressive, no one in the moderate prime conditions did so. In addition, both confidence and recognition memory are frequently the lowest under moderate prime.

The receivers' decrease in confidence for general information occured because the moderate prime lead to use of an inadequately complex schema at encoding. The prime decreased transmitters confidence in specific information for similar reasons. A response bias for general level information reduces accuracy when confronted with general foils. The effect is weaker for transmission subjects since both priming and set instructions provide them with a predilection for specific information which helps to modify the effect of the general response bias. That is, priming strengthened the transmitters strategy to select specific consistent information.

So far, we have not discussed the findings in the recall data. The reason for this is quite simple: the recall data supported none of the hypotheses about schema processing. In fact, it seems that recall was influenced more by subjects expectations about story structure than it was influenced by their impressions of John. There are three sources of support for this assertion. First, unlike the recognition data which was influenced by factors associated with schema processing (i.e., prime, set and information consistency), recall appears impervious to their effects. Secondly, and in line with the first point, Zajonc's findings of a set by level or a set by recall style effect were not replicated, whereas the common list learning

effect of a significant serial position curve was found. Last, and most importantly, the probability of recognizing an item given it was recalled produces a level X consistency interaction. This interaction shows that whereas subjects could *recall* an item they could not *recognize* it.

This result is sensible only if we consider that subjects accomplished recall and recognition tasks by accessing two different formats of the "John" information: the former was done using an episodic trace whereas the latter used a schematic trace. Another way of producing the same effect is to say that there exists only one memory trace and that episodic and schematic retrieval processes differentially access trace information. Whether one views this effect as resulting from two different processes and one trace or 2 traces produced by 2 processes, it is still the case that students did demonstrably different things when recalling and recognizing the same information. When subjects recalled the description they used the organization of the information provided in the target description to format their recall: hence, the serial position curves. The order of the target description items on the recognition list was scrambled therefore, it would not have been reasonable to do a serial search through the target description when doing the recognition task. A serial search would require searching up to 59 items for each

recognition item. Thus a more economical search method was needed, and schematic memory processes seem to have provided the method. It is not clear that this result would have occured if the recognition list has been presented in the same serial order as the target description. Had this been the case, the most efficient strategy might have been to access an episodic representation and then to do limited serial searches of the target description. Further research is needed to resolve this issue.

One final effect is worthy of note. General and specific levels of descriptiveness seem to have an associated degree of consistency which facilitates recall of that level. General recalled information is usually consistent information, specific recalled information tends to be inconsistent and sometimes consistent. Moderate level information is uninfluenced by the degree of conistency of information. When one also examines recall style, a slightly different pattern emerges. Usually, specific information is recalled more generally. Only when it is inconsistent do people as often state the original level of detail at recall as state it more generally. Consistent information is recalled best when it was specific in the text and it is recalled as a more general statement, although some general and moderate consistent statements are recalled as such. Neutral information is recalled best at

its level of encoding except for specific information which is recalled more generally. Finally, inconsistent information is recalled more generally than it was encoded, although some specific information is recalled at encoded levels. In summary, consistent and neutral information are recalled similarly and usually at the same level as the information in the text; whereas, inconsistent general information is almost never recalled, and moderate and specific information are recalled more generally. It seems then that there is a tendency at recall to express all information at a moderate to general level of descriptiveness when the information is consistent or neutral. Inconsistent information is handled somewhat differently. General inconsistent information is almost never recalled, moderately inconsistent information is recalled more generally rather than at the same level as with other types of information, and specific inconsistent information is as often recalled as specific information as it is as more general information. Since most types of information are treated similarly, it is possible that recall style may be more a reflection of how information is organized for output than it is an indication of the underlying personality impression. The only exception to this may be the differential treatment of inconsistent information. Inconsistent information may be treated

differently as a means of emphasizing its difference from the rest of the information in the impression.

Summary and Conclusions

The purpose of the thesis was to investigate how a primed identification schema and a strategy would interact, and to investigate the effects of varying the strength of a prime. Zajonc's cognitive tuning sets were chosen as the two strategies and the concept of a violently aggressive man was chosen as the identification schema to be primed. Previous research indicated that a reception strategy was the default approach people use when forming an impression about a person, while a transmission strategy led people to construct a very narrow, detail oriented impression. Previous research on priming suggested that primed schemas acted in much the same way as theories do for scientists leading to a bias toward theoretically meaningful information at the expense of theoretically unmeaningful information: i.e., people deal with consistent information better than they deal with inconsistent information. It was anticipated that priming and set would interact on recall and recognition and that priming, set, and consistency would interact on recognition.

There was support for the hypothesis that priming was not an all or none phenomena. Evidence suggests that how one primes a complex concept can affect the extent of the

facilitation or inhibition effected by the prime. It was suggested that priming interferes with the default allocation of resources usually determined by the encoding strategy and that as a result priming an identification schema would have different results depending upon the type of encoding strategy being affected. For example, strong primes seemed to polarize the normally nonpolarized reception strategy and to moderate the normally polarized transmission strategy. As a result, while reception subjects did develop a stronger response bias for consistent information as prime strength increased, transmission subjects became less suseptible to the response bias.

It was predicted that tuning set would lead people to make level compatible errors on recognition. There was some support for this hypothesis. Rather than only reception subjects having a response bias for general information, it appears that this bias exists for both receivers and transmitters. The general level response bias does not stem from a failure to encode specific information as expected, but seems more likely to be a function of the impression formation process per se, since both tuning sets exhibited it.

The last hypothesis was that contrary to the assertions of some researchers, people do have as accurate memory for consistent information as they do for inconsistent

information. Accurate recognition memory for consistent information was expected to be displayed when people were tested with a forced choice test. People were able to exhibit high levels of recognition accuracy for consistent information when they were tested on a forced choice recognition test. Unexpectedly, their accuracy on consistent information was significantly better than on inconsistent information. This coupled with the finding that inconsistent information was remembered better than consistent when all items were false, lead to the conclusion that people were making their decisions using only a response bias for consistent information rather than using data-driven processing as well.

An unanticipated result of the response bias for consistent information was that it could lead to either a tendency for greater accuracy for consistent information when tested using forced choice tests or for greater accuracy for inconsistent information when tested on a serial test where all items are false. The important aspect of this result is that the same process can produce results which are conceptually compatible, but which are apparently in conflict with each other.

Recall results do not support any of the hypotheses about schematic processing put forth in this theses. The fact that subjects were able to recall information that they

were subsequently unable to recognize suggests that subjects performed the two tasks using different means of accessing the target information.

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Appendix A

Appendix A.1 Target Description

I. Target description broken down by item and item type. The bracketed letters preceding each item indicate the item type. The first letter represents the rated level of descriptiveness of the item (g = general, s = specific, m = moderate), and the second letter indicates stereotype consistency (c = consistent, n = neutral, i = inconsistent).

1. 1 (G-C) John's family lives in a pleasant middle-class area of town.
2. (G-C) He has an older brother
3. (G-N) and a younger sister.
4. (M-I) The older brother just started working last spring
5. (M-I) after he graduated from university.
6. (M-N) His younger sister is still in school and doing well at her studies
7. (S-I) John's mother is interested in painting,.
8. (S-I) and has sold a few paintings through small galleries.
9. (S-I) His father is very interested in the history of the area,
10. (S-I) and collects books and articles about the early days of Edmonton.
11. (G-N) John's family moved to Edmonton before he was born.

12. (M-I) John is a friend of mine and
13. (G-I) I've known him since grade school.
14. (G-C) He can be hard to get along with,
15. (G-C) like you're never sure what he'll say about you when you're not there.
16. (G-C) But he's a pretty good guy,
17. (M-C) I mean, he'll stand by you when you're in a tight spot.
18. (S-I) We played on the football team together in high school.
19. (M-N) He was really good at it,
20. (S-C) but he played a lot rougher than most people
21. (G-I) He was modest about his ability to play well.
22. (G-C) John is highly competitive and
23. (M-C) a very poor loser.
24. (G-I) Fortunately, he's quite inhibited and
25. (M-N) constrained by social values -
26. (M-I) otherwise, we'd have been in a lot more fights than we were.
27. (S-I) I went out with John, off and on, for about two years.
28. (M-N) He's really shy around women,
29. (M-N) and finds it hard to meet them.
30. (G-N) Our relationship was pretty stormy,
31. (G-C) because I don't approve of the way he acts.

32. (M-C) His behaviour is generally antagonistic,
33. (G-C) I mean he enjoys getting to people - that's what he calls it.
34. (M-I) On the other hand, he was always very romantic toward me,
35. (S-C) except when he'd get drunk and beat me up.
36. (S-C) I never knew when he was going to get into another fight.
37. (G-N) I don't know if I'd go out with him again.
38. (S-I) John was a student in my grade 12 math class.
39. (S-C) He was quite a disruptive influence -
40. (S-C) once he even threatened me.
41. (S-C) It's too bad you know, because he struck me as being slightly above average in intelligence.
42. (S-C) I mean, he never seemed to have any difficulty learning the material,
43. (S-I) and he nearly always had his homework done on time.
44. (S-C) Of course, sometimes he'd skip class,
45. (G-I) but on the whole he seemed to be as responsible as other kids his age.
46. (G-C) He was quite energetic and
47. (M-C) involved in a lot of different activities.
48. (G-C) While John likes activity, I would not say he was cooperative,

49. (M-C) he prefers to lead and do things in his own way.
50. (S-N) John was born and raised in Edmonton.
51. (S-I) He is presently attending university,
52. (S-I) and is studying chemistry.
53. (S-I) John attended Allendale Elementery for his primary schooling
54. (S-I) and Scona for high school.
55. (S-I) During the summers he often stayed on his grandfather's farm in St. Albert.
56. (S-N) He learned to drive the summer he turned sixteen.
57. (S-N) In his last year of highschool he started working part-time,
58. (S-I) for a pizza place as a delivery person.
59. (S-N) He still works for the same company.

Appendix A.2 Priming Words

II. Words used to prime the stereotype broken down by order of presentation and level of prime.

	Strength of Prime		
	Strong	Moderate	None
Slide #8			
A	bitter (8.0)	serious (6.2)	sociable (3.3)
B	pleased (4.0)	pleased (4.0)	pleased (4.0)
C	serious (6.2)	glad (3.5)	glad (3.5)
Slide #9			
A	assertive (7.5)	untrustworthy (6.0)	average (3.2)
B	low (5.7)	low (5.7)	low (5.7)
C	untrustworthy (6.0)	foolish (5.8)	foolish (5.8)
Slide #10			
A	bad-tempered (8.3)	rude (6.3)	confident (4.5)
B	inspired (4.0)	inspired (4.0)	inspired (4.0)
C	rude (6.3)	humourous (3.2)	humourous (3.2)
Slide #11			
A	hostile (7.3)	unmethodical (6.5)	rational (3.7)
B	clean (4.8)	clean (4.8)	clean (4.8)
C	unmethodical (6.5)	lucky (3.7)	lucky (3.7)
Mean ratings	S=7.8, M=6.3, U=4.6	M=6.3, U=4.3	U=4.1

The bracketed numbers are mean descriptiveness ratings for each trait with respect to the stereotype.
(1= not at all, 9= very descriptive).

Appendix B

Appendix B.1 Recall Instructions

What I want you to do is try to remember everything you have just read about John. Take a minute to get the information clear in your mind, and then *in point form* note down in the booklet what you remember. Please number each point. For example, if you thought that the desciption of John said something about him having a dog named Spot, you might write something like:

1. John has a dog named Spot.

Feel free to state your opinion of John and of the information you've received so far. However, when you say something that is your opinion or an inference that you've made, put an 'O' (for opinion) in the left hand margin beside the number. So for example, if you thought that John probably drives a muscle car but there is nothing in the description about the type of car that John drives, you would write down something like this:

1. O John probably drives a muscle car.

Appendix B.2 Recognition Instructions

In a few minutes you are going to be seeing some items on your video monitor. Each item is numbered and will consist of either a single statement, or two statements labelled (A) and (B).

When you see a single statement, please decide whether you saw that statement in the description you read earlier. If you feel the statement is the one you saw in the description, circle YES for that item in you booklet; otherwise, circle NO. After you have done this, indicate how sure you are about your answer. You will notice that a scale from 1 to 9 appears for every item in your answer in your answer booklet. 1 means you're not at all sure, and 9 means you're very sure. Circle a number from 1 to 9 that describes how sure you are about your answer. When you see two statements labelled (A) and (B), please decide which statement was in the description you read. Circle 'A' for that item iyou think statement 'A' is the one you saw; otherwise circle 'B'. Then, as you did before indicate how sure you are about your answer on the scale for that item.

Example 1

On your monitor you will see:

1. John lived in Sussex for 6 years.

In your booklet you will see:

1. YES NO not at all sure 1 2 3 4 5 6 7 8 9 very sure

Remember, circle either YES or NO to show that you think it was or was not in the description, and then circle a number on the scale to show how sure you are.

Example 2

On your monitor you will see:

1. (A) John lived in Sussex for 6 years.
   (B) John is 5'8" tall.

In your booklet you will see:

1. (A) (B) not at all sure 1 2 3 4 5 6 7 8 9 very sure

Remember, circle either (A) or (B) to show which statement you think was in the descritpion, and then circle a number on the scale to show how sure you are.

Please note that the number for each item corresponds to the numbers in your booklet. Make sure that you are recording your answer in the correct place. Each item will appear on your screen for 12 seconds. Then the screen will

go blank for a few seconds before the next item appears. You do not have to wait until the screen goes blank before answering; feel free to respond at any time while the item is on your screen. Please answer every item, even if you are not sure. Some items will be similar, but not identical, to ones in the description you read, others will be very different.

Once again, when one statement appears, decide *whether* it was in the description you read (YES or NO). When two statements appear, decide *which one* was in the description you read (A or B), and then circle a number to show how sure you are.

Appendix C Source Tables

Appendix C.1 Table 14

Source table for false serial recognition.

Source	Degrees of Freedom	Mean Squares	F Ratio
A (PRIME)	2	0.114	1.140
B (SET)	1	0.148	1.475
AB	2	0.107	1.069
S-WITHIN	82	0.100	
C (LEVEL)	1	0.024	1.739
AC	2	0.001	<1
BC	1	0.009	<1
ABC	2	0.012	<1
CS-WITHIN	82	0.014	
D (STEREOTYPE CONSISTENCY)	1	0.195	11.294***
AD	2	0.002	<1
BD	1	0.001	<1
ABD	2	0.002	<1
ERROR	82	0.017	
CD	1	0.004	<1
ACD	2	0.026	2.025
BCD	1	0.002	<1
ABCD	2	0.012	<1
ERROR	82	0.013	
E (TARGET CONSISTENCY)	1	5.214	170.56***
AE	2	0.009	<1
BE	1	0.000	<1
ABE	2	0.099	3.233*
ERROR	82	0.031	
CE	1	0.052	3.641
ACE	2	0.008	<1
BCE	1	0.000	<1
ABCE	2	0.000	<1
ERROR	82	0.014	

Source	Degrees of Freedom	Mean Squares	F Ratio
DE	1	0.002	<1
ADE	2	0.015	<1
BDE	1	0.008	<1
ABDE	2	0.039	1.699
ERROR	82	0.023	
CDE	1	0.023	1.352
ACDE	2	0.002	<1
BCDE	1	0.032	1.828
ABCDE	2	0.000	<1
ERROR	82	0.017	

* p<.05, ** p<.01, *** p<.001

Appendix C.2 Table 15

Serial recognition accuracy for both old and new items.

Source	Degrees of Freedom	Mean Squares	F Ratio
A (PRIME)	2	0.051	<1
B (SET)	1	0.022	<1
AB	2	0.068	1.509
ERROR	81	0.045	
C (LEVEL)	1	0.019	<1
AC	2	0.003	<1
BC	1	0.002	<1
ABC	2	0.016	<1
ERROR	81	0.022	
D (CONSISTENCY)	1	0.014	<1
AD	2	0.016	<1
BD	1	0.001	<1
ABD	2	0.002	<1
ERROR	81	0.022	
CD	1	0.002	<1
ACD	2	0.017	<1
BCD	1	0.009	<1
ABCD	2	0.026	1.139
ERROR	81	0.023	
E (Old vs New)	1	.728	9.191**
AE	2	0.007	<1
BE	1	0.087	1.093
ABE	2	0.144	1.820
ERROR	81	0.079	
CE	1	0.057	4.771*
ACE	2	0.032	2.644
BCE	1	0.005	<1
ABCE	2	0.001	<1
ERROR	81	0.012	
DE	1	0.251	15.141***
ADE	2	0.004	<1
BDE	1	0.007	<1
ABDE	2	0.012	<1
ERROR	81	1.017	

Source	Degrees of Freedom	Mean Squares	F Ratio
CDE	1	0.021	<1
ACDE	2	0.003	<1
BCDE	1	0.002	<1
ABCDE	2	0.009	<1
ERROR	81	0.019	

* p<.05, ** p<.01, *** p<.001

Appendix C.3 Table 16

Serial recognition confidence for both old and new items.

Source	Degrees of Freedom	Mean Squares	F Ratio
A (PRIME)	2	2.810	<1
B (SET)	1	0.239	<1
AB	2	3.530	1.085
ERROR	78	3.252	
C (LEVEL)	1	2.907	6.433*
AC	2	2.112	4.674*
BC	1	0.014	<1
ABC	2	1.466	3.243*
ERROR	78	0.452	
D (CONSISTENCY)	1	0.293	<1
AD	2	0.053	<1
BD	1	0.031	<1
ABD	2	0.546	1.098
ERROR	78	0.497	
CD	1	0.485	<1
ACD	2	0.469	<1
BCD	1	0.229	<1
ABCD	2	1.099	1.929
ERROR	78	0.569	
E (Old vs New)	1	2.603	3.768
AE	2	0.251	<1
BE	1	0.154	<1
ABE	2	0.020	<1
ERROR	78	0.691	
CE	1	0.833	3.704
ACE	2	0.674	2.998
BCE	1	0.126	<1
ABCE	2	0.026	<1
ERROR	78	0.225	
DE	1	0.119	<1
ADE	2	0.102	<1
BDE	1	0.048	<1
ABDE	2	0.336	1.837
ERROR	78	0.183	

Source	Degrees of Freedom	Mean Squares	F Ratio
CDE	1	0.055	<1
ACDE	2	0.099	<1
BCDE	1	0.136	<1
ABCDE	2	0.176	<1
ERROR	78	0.275	

* p<.05, ** p<.01, *** p<.001

Appendix C.4 Table 17

Forced choice recognition accuracy.

Source	Degrees of Freedom	Mean Squares	F Ratio
A (PRIME)	2	0.068	<1
B (SET)	1	0.022	<1
AB	2	0.010	<1
ERROR	84	0.087	
C (TYPE OF FOIL)	1	10.756	217.696***
AC	2	0.018	<1
BC	1	0.022	<1
ABC	2	0.143	2.895
ERROR	84	0.049	
D (LEVEL)	1	9.800	109.518***
AD	2	0.262	2.933
BD	1	0.0	<1
ABD	2	0.204	2.282
ERROR	84	0.089	
CD	1	8.022	67.274***
ACD	2	0.051	<1
BCD	1	0.0	<1
ABCD	2	0.054	<1
ERROR	84	0.119	
E (CONSISTENCY)	1	5.00	84.283***
AE	2	0.104	1.755
BE	1	0.089	1.501
ABE	2	0.235	3.957*
ERROR	84	0.059	
CE	1	5.00	56.123***
ACE	2	0.038	<1
BCE	1	0.089	<1
ABCE	2	0.051	<1
ERROR	84	0.089	
DE	1	1.422	16.787***
ADE	2	0.026	<1
BDE	1	0.022	<1
ABDE	2	0.068	<1
ERROR	84	0.085	

Source	Degrees of Freedom	Mean Squares	F Ratio
CDE	1	5.689	64.435***
ACDE	2	0.043	<1
BCDE	1	0.200	<1
ABCDE	2	0.179	2.027
ERROR	84	0.088	

* p<.05, ** p<.01, *** p<.001

Appendix C.5 Table 18

Forced choice recognition confidence.

Source	Degrees of Freedom	Mean Squares	F Ratio
A (PRIME)	2	22.516	2.325
B (SET)	1	2.688	<1
AB	2	7.756	<1
ERROR	84	9.984	
C (TYPE OF FOIL)	1	6.050	1.708
AC	2	0.950	<1
BC	1	1.421	<1
ABC	2	1.688	<1
ERROR	84	3.542	
D (LEVEL)	1	33.798	7.270***
AD	2	6.718	1.445
BD	1	4.054	<1
ABD	2	16.463	3.541*
ERROR	84	4.649	
CD	1	0.557	<1
ACD	2	7.905	1.299
BCD	1	0.004	<1
ABCD	2	9.359	1.538
ERROR	84	6.085	
E (CONSISTENCY)	1	3.754	<1
AE	2	12.290	1.670
BE	1	7.606	1.034
ABE	2	12.570	1.708
ERROR	84	7.359	
CE	1	43.022	11.680***
ACE	2	1.688	<1
BCE	1	7.610	2.066
ABCE	2	0.672	<1
ERROR	84	3.683	
DE	1	36.453	6.219*
ADE	2	2.598	<1
BDE	1	4.999	<1
ABDE	2	2.620	<1
ERROR	84	5.862	

Source	Degrees of Freedom	Mean Squares	F Ratio
CDE	1	123.340	21.321***
ACDE	2	9.089	1.571
BCDE	1	1.084	<1
ABCDE	2	16.604	2.870
ERROR	84	5.785	

* p<.05, ** p<.01, *** p<.001

Appendix C.6 Table 19

Strict recall by paragragh.

Source	Degrees of Freedom	Mean Squares	F Ratio
A (PRIME)	2	0.0576	<1
B (SET)	1	0.081	<1
AB	2	0.003	<1
ERROR	84	0.074	
C (PARAGRAPH)	4	1.887	54.186***
AC	8	0.038	1.094
BC	4	0.013	<1
ABC	8	0.022	<1
ERROR	336	0.035	

*** p<.001

Appendix C.7 Table 20

Correct recall using the strict criterion.

Source	Degrees of Freedom	Mean Squares	F Ratio
A (PRIME)	2	0.049	<1
B (SET)	1	0.094	<1
AB	2	0.019	<1
ERROR	84	0.130	
C (LEVEL)	2	2.583	56.325***
AC	4	0.099	2.169
BC	2	0.082	1.789
ABC	4	0.042	<1
ERROR	168	0.046	
D (CONSISTENCY)	2	0.158	3.630*
AD	4	0.013	<1
BD	2	0.005	<1
ABD	4	0.004	<1
ERROR	168	0.043	
CD	4	0.556	14.202***
ACD	8	0.062	1.579
BCD	4	0.004	<1
ABCD	8	0.021	<1
ERROR	336	0.039	

* p<.05, ** p<.01, *** p<.001

Appendix C.8 Table 21

Strict recall for paragraphs 2 to 4 only.

Source	Degrees of Freedom	Mean Squares	F Ratio
A (PRIME)	2	0.041	<1
B (SET)	1	0.047	<1
AB	2	0.161	1.096
ERROR	84	0.147	
C (LEVEL)	2	2.697	51.396***
AC	4	0.072	1.379
BC	2	0.053	1.001
ABC	4	0.040	<1
ERROR	168	0.052	
D (CONSISTENCY)	2	0.765	14.459***
AD	4	0.021	<1
BD	2	0.027	<1
ABD	4	0.031	<1
ERROR	168	0.053	
CD	4	0.282	4.489**
ACD	8	0.057	<1
BCD	4	0.052	<1
ABCD	8	0.029	<1
ERROR	336	0.063	

* p<.05, ** p<.01, *** p<.001

Appendix C.9 Table 22

Percent correct on scored recall.

Source	Degrees of Freedom	Mean Squares	F Ratio
A (PRIME)	2	0.070	1.559
B (SET)	1	0.050	1.132
AB	2	0.009	<1
ERROR	84	0.045	
C (CONSISTENCY)	2	0.007	<1
AC	4	0.006	<1
BC	2	0.015	<1
ABC	4	0.003	0.175
ERROR	168	0.018	
D (LEVEL)	2	1.222	76.570***
AD	4	0.029	1.788
BD	2	0.017	1.054
ABD	4	0.010	<1
ERROR	168	0.016	
CD	4	0.294	19.300***
ACD	8	0.023	1.54
BCD	4	0.014	<1
ABCD	8	0.005	<1
ERROR	336	0.015	
E (RECALL STYLE)	2	4.334	98.320***
AE	4	0.027	<1
BE	2	0.010	<1
ABE	4	0.044	1.000
ERROR	168	0.044	
CE	4	.678	30.304***
ACE	8	0.011	<1
BCE	4	0.015	<1
ABCE	8	0.027	1.213
ERROR	336	0.022	
DE	4	0.826	40.113***
ADE	8	0.024	1.150
BDE	4	0.025	1.214
ABDE	8	0.025	1.199
ERROR	336	0.021	

Source	Degrees of Freedom	Mean Squares	F Ratio
CDE	8	0.549	25.68***
ACDE	16	0.017	<1
BCDE	8	0.030	1.407
ABCDE	16	0.026	1.221
ERROR	672	0.021	

* p<.05, ** p<.01, *** p<.001

Appendix C.10 Table 23

Use by subject of label 'aggressive'.

Source	Degrees of Freedom	Mean Squares	F Ratio
A (PRIME)	2	0.400	2.965 *
B (SET)	1	0.100	<1
AB	2	0.133	<1
ERROR	84	0.135	<1

* p<.10

Appendix C.11 Table 24

Level of descriptiveness of the subjects' inferences.

Source	Degrees of Freedom	Mean Squares	F Ratio
A (PRIME)	2	44.372	<1
B (SET)	1	16.200	<1
AB	2	66.650	1.323
ERROR	84	50.373	
C (LEVEL)	1	118.422	3.588 *
AC	2	72.006	2.182
BC	1	51.200	1.551
ABC	2	69.617	2.109
ERROR	84	33.002	

* $p < .10$

Appendix C.12 Table 25

Degree of consistency of the subjects' inferences.

Source	Degrees of Freedom	Mean Squares	F Ratio
A (PRIME)	2	2.060	<1
B (SET)	1	17.726	6.501 *
AB	2	2.980	1.093
ERROR	82	2.727	
C (LEVEL)	1	123.461	72.069 ***
AC	2	2.959	1.727
BC	1	2.984	1.742
ABC	2	1.165	<1
ERROR	84	1.713	

* p<.05, ** p<.01, *** p<.001

Appendix D

Appendix D.1 Serial Recognition Confidence

The serial recognition confidence for old and new items was analyzed by Accuracy (correct, incorrect) in addition to the other factors. Unfortunately, in some cases the cell n's go to zero and so the full design cannot be analyzed. When 'old' items are analyzed separately from 'new' items; all cell n's are greater than zero, although they are still seriously reduced and nonproportional. Table 25 show the cell n's for the between subjects factors.

Appendix D.1 Table 25

Strength of Prime

	None	Moderate	Strong
Reciever	5	6	6
Transmitter	2	6	5

This analysis produced a five way interaction among Prime, Set, Level, Consistency, and Accuracy, $F(2,24)=3.862$, $p<.035$, $MSe=1.134$. There were four subordinate effects: main effect of Accuracy, $F(1,24)=6.782$, $p<.016$; Accuracy X Consistency, $F(1,24)=5.312$, $p<.030$; Prime X Accuracy X Consistency, $F(2,24)=3.41$, $p<.05$; Set X Accuracy X Consistency, $F(1,24)=5.182$, $p<.032$. The MSe for all subordinate interactions is 1.007. The means for the five-way interaction are presented in Table 26.

Appendix D.2 Table 26

	Strength of Prime		
Receiver:Accurate			
	None	Moderate	Strong
General			
Consistent	6.667	8.150	7.375
Inconsistent	8.500	7.286	8.000
Specific			
Consistent	7.417	7.850	8.417
Inconsistent	6.000	7.957	6.479
Receiver:Inaccurate			
	None	Moderate	Strong
General			
Consistent	7.725	7.614	7.339
Inconsistent	6.500	7.429	4.000
Specific			
Consistent	7.208	7.798	7.000
Inconsistent	7.688	7.995	6.767
Transmitter:Accurate			
	None	Moderate	Strong
General			
Consistent	8.217	7.229	7.629
Inconsistent	8.900	7.125	8.625
Specific			
Consistent	8.037	6.950	7.688
Inconsistent	7.338	6.800	7.181
Transmitter:Inaccurate			
	None	Moderate	Strong
General			
Consistent	7.940	6.729	8.396
Inconsistent	6.200	7.125	6.625
Specific			
Consistent	6.567	7.450	7.500
Inconsistent	7.950	7.237	5.104

The interaction, while appearing very complex, suggest something quite simple and straightforward. Zajonc (1960) might lead one to expect that people feel most comfortable

with level compatible information. These confidence data suggests a corrollary: that with increasing prime, when people are inaccurate they have the least confidence in their errors when they are operating against their level and when the information is inconsistent. For example, transmitters are least confident when erring on inconsistent-*specific* items and receivers are least confident when erring on inconsistent-*general* items.

Appendix D.3 Confidence in Not Presented Items

Analysis of items which were not presented provide two significant four-way interactions: Prime X Set X Level X Information consistency, $F(2,20) = 3.939$, $p<.036$, $MSe = .637$, and a Prime X Level X Info X Accuracy, $F(2,20) = 4.224$, $p<.030$, $MSe = 1.675$. The means are presented in Tables 27 and 28

Appendix D.4 Table 27

	Strength of Prime					
	None		Moderate		Strong	
	Re'ver	Trans	Re'ver	Trans	Re'ver	Trans
General						
Consistent	7.196	8.078	7.882	6.979	7.357	8.012
Inconsistent	7.5	7.55	7.357	7.125	6.000	7.625
Specific						
Consistent	7.312	7.302	7.824	7.2	7.708	7.594
Inconsistent	6.844	7.644	7.976	7.019	6.623	6.142

Appendix D.5 Table 28

	Strength of Prime					
	None		Moderate		Strong	
	Right	Wrong	Right	Wrong	Right	Wrong
General						
Consistent	7.74	7.879	7.815	7.292	7.502	7.868
Inconsistent	8.786	6.286	7.227	7.318	8.313	5.313
Specific						
Consistent	7.86	6.750	7.523	7.671	8.052	7.250
Inconsitent	6.956	7.875	7.536	7.719	6.830	5.935

Table 27 indicates results similar to the 'presented' items dealt with in Table 26. Independently of accuracy and when prime is strong, receivers are least confident when

dealing with inconsistent-*general* items and transmitters are least confident when dealing with inconsistent-*specific*. In addition, for receivers prime produces an inverted U-shaped curve for consistent and specific-inconsistent information whereas there is a U-shaped curve over prime for transmitters dealing with consistent and general-inconsistent information.

From Table 28, it can be seen that priming has differential effects on inconsistent information whereas it has no effect on consistent information when participants are accurate. When subjects are accurate they deal relatively confidently with consistent information. When information is inconsistent there is a U-shaped pattern across levels of prime for general information and an inverted U-shaped pattern for specific iformation. However,when participants are inaccurate, the inverted U-shape holds for both general and specific inconsistent information but only for specific consistent information. The exception, general consistent information, shows a U-shaped pattern of confidence.